

This listing of claims will replace all prior versions of claims in the application.

Claim 1. (currently amended) A method for forming a photoresist relief image, comprising:

(a) applying a photoresist composition on a substrate, the photoresist comprising an aromatic resin and a photoactive component, the resin obtainable from reaction of i) a polyol and/or thiol, and ii) a reactive methylene or keto compound, at least one of the polyol and methylene compound having one or more electronegative substituents, and

(b) exposing the photoresist to activating radiation having a wavelength of less than 300 nm and developing the exposed photoresist layer.

Claim 2. (cancelled).

Claim 3. (currently amended) The method of claim 1-2, wherein the photoresist is exposed with radiation having a wavelength of less than about 260 nm.

Claim 4. (currently amended) The method of claim 1-2, wherein the photoresist is exposed with radiation having a wavelength of less than about 200 nm.

Claim 5. (currently amended) The method of claim 1-2, wherein the photoresist is exposed with radiation having a wavelength of about 157 nm.

Claim 6. (previously presented) The method of claim 1 wherein the resin comprises phenolic units.

Claim 7. (previously presented) The method of claim 1 wherein the polyol is an aromatic compound.

Claim 8. (previously presented) The method of claim 1 wherein the polyol is a bisphenol, a polyhydroxybenzene or a polycarboxylic acid compound.

Claim 9. (previously presented) The method of claim 1 wherein the methylene compound or keto compound is a benzyl compound, or an aldehyde substituted with one or more electronegative groups.

Claim 10. (previously presented) The method of claim 1 wherein the resin comprises halogen, halogenated lower alkyl, nitro, cyano, sulfinyl, O-C-O or sulfonyl groups.

Claim 11. (previously presented) The method of claim 1 wherein the resin comprises at least one of fluorine atom, fluorinated lower alkyl, perfluoroalkyl, perfluoroalkylene, fluorinated cycloalkyl, and efluorinated ethers and esters including fluorinated cyclic ethers and esters.

Claim 12. (previously presented) The method of claim 1 wherein the resin comprises acrylate units.

Claim 13. (previously presented) The method of claim 1 wherein the resin is a homopolyacetal.

Claim 14. (previously presented) The method of claim 1 wherein the resin is a copolyacetal.

Claim 15. (previously presented) The method of claim 1 wherein the polymer is a chemically amplified positive resist.

Claim 16. (previously presented) The method of claim 1 wherein the polymer is a negative resist.

Claim 17. (currently amended) A positive photoresist composition comprising a photoactive component and a resin ~~binder~~ comprising a polymer that comprises repeat units of:

- 1) an active methylene or aldehyde or other carbonyl compound that forms an acetal group in a polymerization or co-polymerization reaction; and
- 2) a polyol or thio that reacts with the methylene or aldehyde or other carbonyl compound to form the acetal group.

Claim 18. (previously presented) The photoresist composition of claim 17 wherein repeat units of the polymer comprise one or more electronegative substituents.

Claims 19-30. (cancelled).

Claim 31. (currently amended) A method for forming a positive ~~or negative~~ photoresist relief image, comprising:

- (a) applying a coating layer of a photoresist of claim 17 on a substrate, and
- (b) exposing and developing the photoresist layer to yield a positive-tone relief image.

Claim 32. (currently amended) The method of claim 31 ~~29~~ wherein the photoresist layer is exposed with radiation having a wavelength of less than about 300 nm.

Claim 33. (currently amended) The method of claim 31 ~~29~~ wherein the photoresist layer is exposed with radiation having a wavelength of less than about 170 nm.

Claim 34. (currently amended) The method of claim 31 ~~29~~ wherein the photoresist layer is exposed with radiation having a wavelength of about 157 nm. |

Claim 35. (previously presented) An article of manufacture comprising a substrate having coated thereon a layer of the photoresist composition of claim 17.

Claim 36. (cancelled).

Claim 37. (new) The article of claim 35 wherein the substrate is a microelectronic wafer.